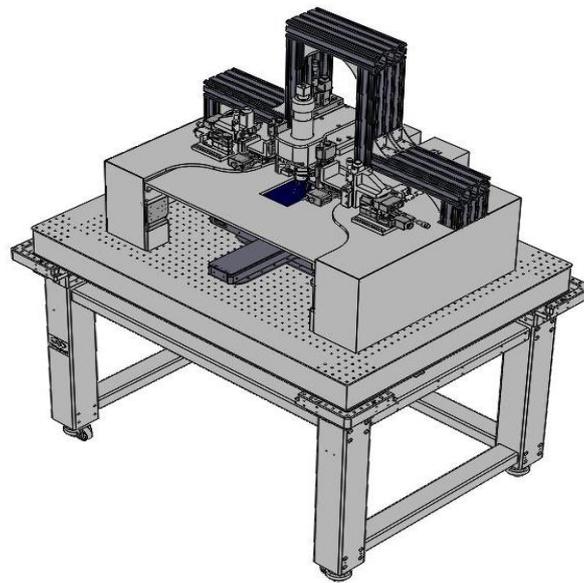# WIT-220 Wafer Tester

1. System Explanation

The system is designed for fast 100% wafer level testing to ensure known good chips for post fab wafer processing based capable of different levels of performance classifications. The system includes several functional blocks including defect detection, precision calibration, motion control, optical testing, and electrical probing.

Defect detection: All die images fetched for identification of scratch, crack, debris and defects based in depth AI processing algorithms embedded with in-house IPs. Substituting human visual judge, the flying visual probing has drastically improved efficiency and accuracy of defect detection on wafer level supporting large scale quality compliance screening.

Height calibration: Use 3D laser scanning，a wafer topologic graph is generated. The data are used to calculate the vertical height information. Delta is subtracted for tool position servicing advanced subsequent testing.

Optical testing: Tool supports multiple degrees of light launch methods, including Lens Fiber, SMF or Fiber Array. The height calibration ensures the position precision to ensure the safe optical launch without risk of damaging launching optics and the wafer optical ports.

Electrical testing: Probers are automatically landed on probe pads thru cantilever probe cards. The tool supports hundreds of probes without limiting optical access. Thousands of probes tips can be managed per specific custom request. Good insulation and system screen shield design ensures electrical noise below sub-nA. Specific pA probes can be added to the tester per custom request.

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2. Parameter

Full automated wafer defect tester based on AI self-learning correlations	
Defect Types	Scratch, crack, discoloring, debris, DIM errors
Defect Capture Rate	99%
Missing Report Rate	<1%
Wrong Report Rate	<1%
Inspection Time (full wafer)	<30min
Opto-electronic full automated wafer tester	
Calibration	Visual AI assisted full automated calibration.
Production testing	Full automated wafer loader, 25 to 50 wafers/lot
Full Automated Opto-Electronic Testing	• Optical testing resolution: 0.05~0.1dB • Precision and stable system architecture • Electrical accuracy: sub nA • Motion resolution: < 50nm • Support micron scale mode size testing
Cost / Performance	The best fine-tuned system engineered by opto-mechanic and opto-electronic professions for best performance at affordable cost. Performance overbeats industrial similar tools, while saving the user capital and facility investment. System is proven to be robust with multiple functional extension capabilities and friendly user interfaces.